

Lake Tippecanoe Aquatic Vegetation Management Plan Update February 8, 2006

Prepared for: Lake Tippecanoe Property Owners Association 67 EMS T49A Lane Syracuse, IN 46567

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INTRODUCTION

This report was created in order to update the Lake Tippecanoe Aquatic Vegetation Management Plan. The plan update was funded by the Lake Tippecanoe Property Owners Association (LTPOA). The update serves as a tool to track changes in the vegetation community, to adjust the action plan as needed, and to maintain eligibility for LARE funds. Items covered include the 2005 sampling results, a review of the 2005 vegetation controls, and updates to the budget and action plans. Once reviewed and approved, the update should be included in the original vegetation management plan, following the reference section and prior to the appendix.

2005 PLANT SAMPLING

Two tier II surveys were completed on Tippecanoe, Oswego, and James (Little Tippe) Lakes in order to document changes in the plant community and to determine the success or failure of control techniques. Surveys were completed for all three lakes on May 17 and August 8, 2005.

Lake Tippecanoe Sampling Results

May Tier II survey, Lake Tippecanoe

On May 17, 2005 a Tier II survey was completed on Lake Tippecanoe. A Secchi disk reading was taken prior to sampling and was found to be 13.0 feet. Plants were present to a maximum depth of 17 feet. One hundred nineteen sites were randomly selected within the littoral zone. Results of the sampling are listed in Table 1. Overall aquatic vegetation distribution and density is illustrated in Figure 1 (in species location and density figures, plant location is illustrated by a color coded dot, the color of the dot represents the density of the species and sample sites without that species are illustrated by a smaller white diamond). The bottom half of Table 1 illustrates the frequency of occurrence, relative density, mean density, and dominance index of individual species collected from Lake Tippecanoe in May 2005.



Table 1. Occurrence and abundance of submersed aquatic plants in Lake

Tippecanoe May 17, 2005.

Tippecanoe .	1VIU 1 / 5 2	20021					
Date:	5/17/2005		Littoral sites with plants:	81		Species diversity:	0.83
Littoral depth (ft):	17		Number of species:	10		Native diversity:	0.79
Littoral sites:	114		Maximum species/site:	4		Rake diversity:	0.80
Total sites:	119		Mean number species/site:	1.13		Native rake diversity:	0.79
Secchi:	13		Mean native species/site:	0.77		Mean rake score:	1.46
Common Name		Site frequency	Relative density		Mean density	Dominance	
Curlyleaf pondwee	ed	31.6	0.49		1.56	9.8	
Flatstem pondwee	ed	22.8	0.24		1.04	4.7	
Chara		20.2	0.21		1.04	4.2	
Coontail		17.5	0.21		1.20	4.2	
Northern watermil	foil	8.8	0.10		1.10	1.9	
Eurasian watermil	foil	5.3	0.08		1.50	1.6	
Richardson's pond	dweed	4.4	0.04		1.00	0.9	
Eel grass		3.5	0.03		1.00	0.7	
Water stargrass		2.6	0.03		1.00	0.5	
Elodea		0.9	0.01		1.00	0.2	

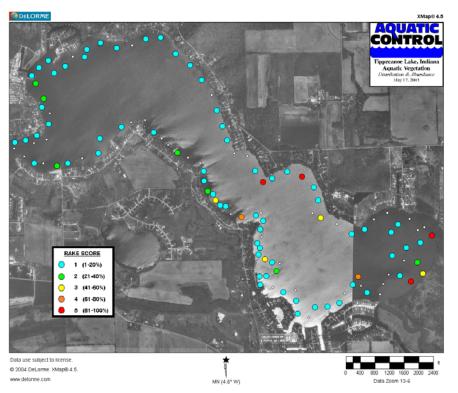


Figure 1. Lake Tippecanoe, aquatic vegetation distribution and abundance, May 17, 2005.



A total of ten species were collected of which two of the species were exotic, curlyleaf pondweed and Eurasian watermilfoil. Curlyleaf pondweed was present at the highest percentage of sample sites (30%) and ranked first in relative density. Location and density for curlyleaf pondweed is illustrated in Figure 2. Flatstem pondweed ranked second in site frequency (21%) and relative density (Figure 3). Chara ranked third in site frequency (19%) and relative density followed by coontail (Figure 4 & 5). Northern watermilfoil ranked fifth in site frequency (8%) and relative density. Eurasian watermilfoil ranked sixth in site frequency (5%) and relative density. Location and density of Eurasian watermilfoil is illustrated in Figure 6. Richardson's pondweed, eel grass, water stargrass, and elodea were also present but at lower abundance and density ratings.

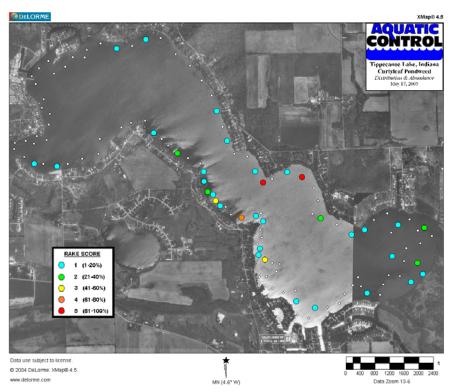


Figure 2. Lake Tippecanoe, curlyleaf pondweed distribution and abundance, May 17, 2005.



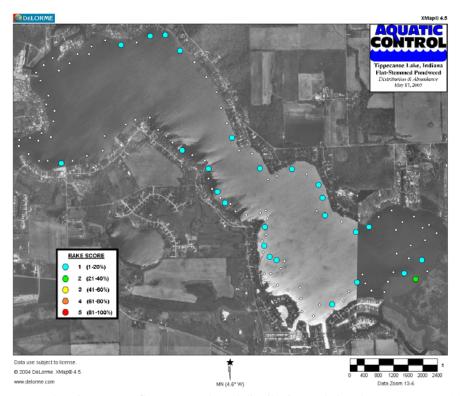


Figure 3. Lake Tippecanoe, flatstem pondweed distribution and abundance, May 17, 2005.

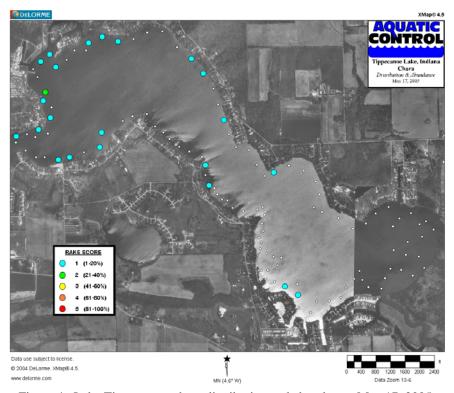


Figure 4. Lake Tippecanoe, chara distribution and abundance, May 17, 2005.



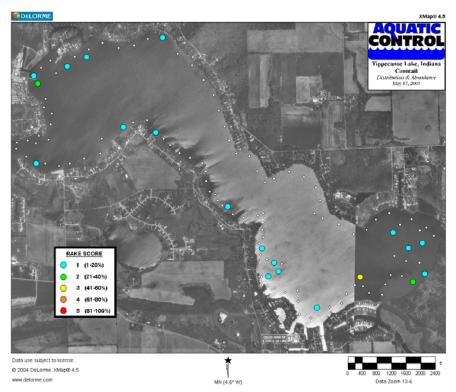


Figure 5. Lake Tippecanoe, coontail distribution and abundance, May 17, 2005.

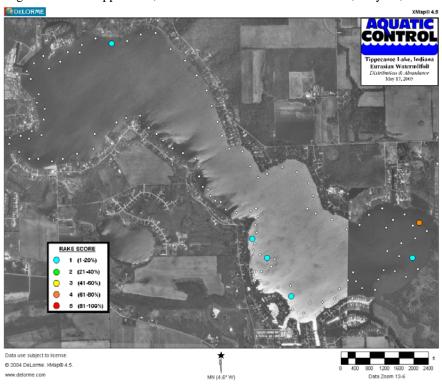


Figure 6. Lake Tippecanoe, Eurasian watermilfoil distribution and abundance, May 17, 2005.



August Tier II survey, Lake Tippecanoe

The second round of Tier II sampling took place on August 8, 2005. A Secchi disk reading was taken prior to sampling and was found to be 6 feet. Plants were present to a maximum of 22 feet. The same one hundred nineteen sites were sampled in August as were in May. Results of the sampling are listed in Table 2. Overall aquatic vegetation distribution and density is illustrated in Figure 7.

Table 2. Occurrence and abundance of submersed aquatic plants in Lake

Tippecanoe August 8, 2005

Date:	8/8/2005		Littoral sites with plants:	98		Species diversity:	0.83
Littoral depth (ft):	22		Number of species:	15		Native diversity:	0.82
Littoral sites:	118		Maximum species/site:	4		Rake diversity:	0.75
Total sites:	119		Mean number species/site:	1.74		Native rake diversity:	0.74
Secchi:	6		Mean native species/site:	1.70		Mean rake score:	3.84
			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
Common Name		Site frequency	Relative density		Mean density	Dominance	
Eel grass		58.00	1.81		3.12	36.10	
Coontail		26.90	0.72		2.69	14.50	
Chara		18.50	0.42		2.27	8.40	
Water stargrass		16.00	0.31		1.95	6.20	
Northern watermil	foil	11.80	0.13		1.14	2.70	
Flatstem pondwee	ed	11.80	0.14		1.21	2.90	
Sago pondweed		10.10	0.29		2.92	5.90	
Richardson's pond	dweed	7.60	0.13		1.67	2.50	
Southern naiad		3.40	0.03		1.00	0.70	
Eurasian watermil	foil	3.40	0.04		1.25	0.80	
Illinois pondweed		2.50	0.03		1.33	0.70	
Slender naiad		1.70	0.02		1.00	0.30	
Elodea		0.80	0.01		1.00	0.20	
Curlyleaf pondwe	ed	0.80	0.01		1.00	0.20	
Small pondweed		0.80	0.01		1.00	0.20	



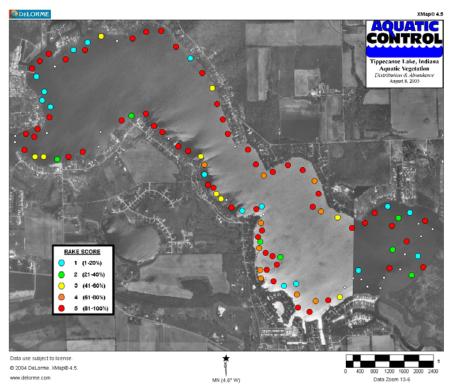


Figure 7. Lake Tippecanoe, overall aquatic vegetation distribution and density, August 8, 2005.

A total of 15 species were collected of which 13 of the species were native. Eurasian watermilfoil and curlyleaf pondweed were the only exotic species collected. Eel grass was present at the highest percentage of sample sites (58%) and also the highest relative density (Figure 8). Coontail ranked second in site frequency (26%) and relative density (Figure 9). Chara ranked third in site frequency (18%) and relative density followed by water stargrass which ranked fourth in site frequency (16%) and relative density. Northern watermilfoil, flatstem pondweed, sago pondweed, Richardson's pondweed, southern naiad, Eurasian watermilfoil, Illinois pondweed, slender naiad, elodea, curlyleaf pondweed, and small pondweed were all present but at lower abundance and density. Location and density of Eurasian watermilfoil is illustrated in Figure 10. Location and density of curlyleaf pondweed is illustrated in Figure 11.



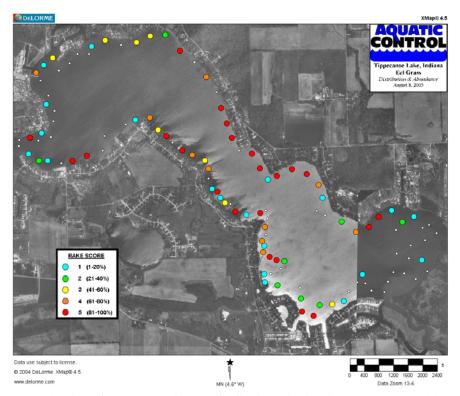


Figure 8. Lake Tippecanoe, eel grass distribution and abundance, August 8, 2005.

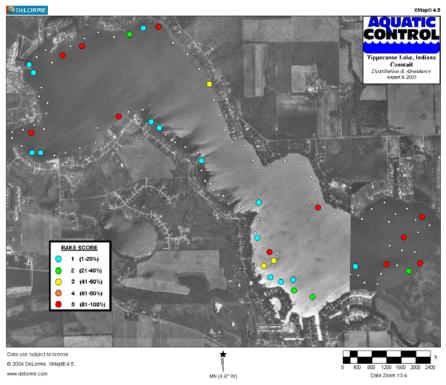


Figure 9. Lake Tippecanoe, coontail distribution and abundance, August 8, 2005.



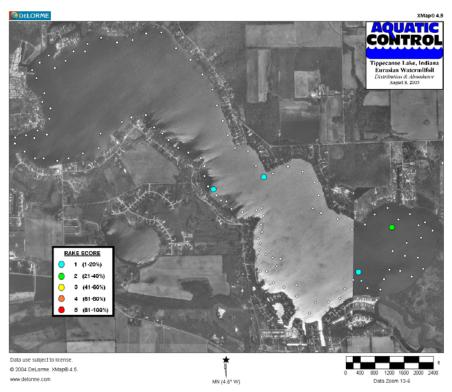


Figure 10. Lake Tippecanoe, Eurasian watermilfoil distribution and abundance, August 8, 2005.



Figure 11. Lake Tippecanoe, curlyleaf pondweed distribution and abundance, August 8, 2005.



May Tier II survey, Oswego Lake

The first tier II sampling event on Oswego Lake took place May 17, 2005. A Secchi disk reading was taken prior to sampling and was found to be 15.0 feet. Plants were present to a maximum of 12 feet. Forty sites were randomly selected within the littoral zone. Results of the sampling are listed in Table 3. Overall aquatic vegetation distribution and density is illustrated in Figure 12. The bottom half of Table 3 illustrates the frequency of occurrence, relative density, mean density, and dominance index of individual species collected from Oswego Lake May 17, 2005.

Table 3. Occurrence and abundance of submersed aquatic plants in Oswego Lake, May 17, 2005.

May 17, 2005.							
Date:	5/17/2005		Littoral sites with plants:	30		Species diversity:	0.83
Littoral depth (ft):	12		Number of species:	7		Native diversity:	0.76
Littoral sites:	35		Maximum species/site:	3		Rake diversity:	0.80
Total sites:	40		Mean number species/site:	1.25		Native rake diversity:	0.75
Secchi:	15		Mean native species/site:	0.93		Mean rake score:	1.43
Common Name		Site frequency	Relative density		Mean density	Dominance	
Chara		31.4	0.34		1.09	6.9	
Coontail		28.6	0.31		1.10	6.3	
Curlyleaf pondweed	ł	25.7	0.60		2.33	12.0	
Flatstem pondweed	I	25.7	0.26		1.00	5.1	
Northern watermilfo	oil	14.3	0.14		1.00	2.9	
Eurasian watermilfo	oil	11.4	0.14		1.25	2.9	
Richardson's pondv	veed	5.7	0.06		1.00	1.1	



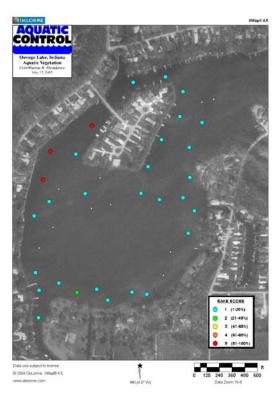


Figure 12. Oswego Lake, overall aquatic vegetation distribution and density, May 17, 2005

A total of 7 species were collected of which 5 of the species were native. Eurasian watermilfoil and curlyleaf pondweed were the only exotic species collected. Chara was present at the highest percentage of sample sites (27%) but ranked second in relative density. Location and density of chara is illustrated in Figure 13. Coontail ranked second in site frequency (25%), but ranked third in relative density (Figure 14). Curlyleaf pondweed ranked third in site frequency (22%) but ranked first in relative density (Figure 15). Flatstem pondweed ranked fourth in site frequency (22%) and relative density. Northern watermilfoil ranked fifth in site frequency (12%), relative density, and dominance. Eurasian watermilfoil ranked sixth in site frequency (10%) and relative density (Figure 16). Richardson's pondweed ranked seventh in site frequency (5%), and relative density. Northern watermilfoil, largeleaf pondweed, small pondweed, spiny naiad, elodea, bladderwort, and nitella were also present at a lower abundance and density.



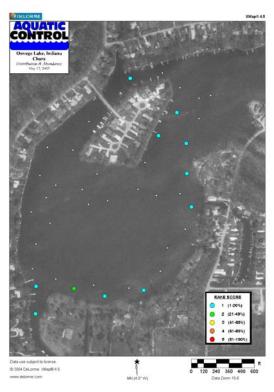


Figure 13. Oswego Lake, chara distribution and abundance, May 17, 2005

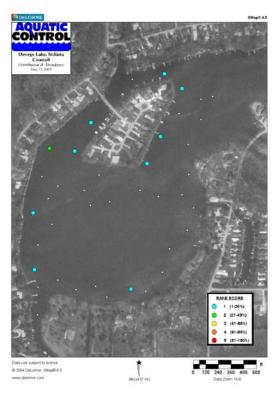


Figure 14. Oswego Lake, coontail distribution and abundance, May 17, 2005



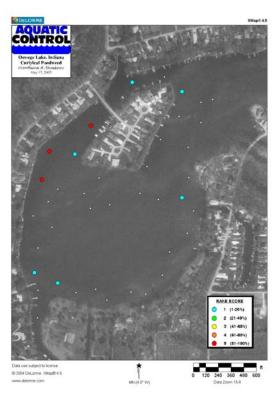


Figure 15. Oswego Lake, curlyleaf pondweed distribution and abundance, May 17, 2005

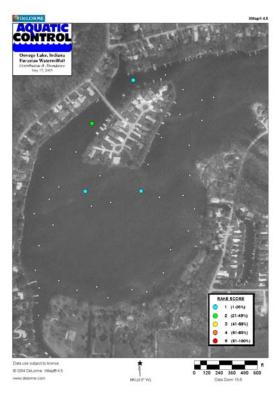


Figure 16. Oswego Lake, Eurasian watermilfoil distribution and abundance, May 17, 2005



August Tier II survey, Oswego Lake

The second round of Tier II sampling took place on August 8, 2005. A Secchi disk reading was taken prior to sampling and was found to be 5.5 feet. Plants were present to a maximum of 19 feet. The same forty sites were sampled in August as were in May. Results of the sampling are listed in Table 4. Overall aquatic vegetation distribution and density is illustrated in Figure 17. The bottom half of Table 4 illustrates the frequency of occurrence, relative density, mean density, and dominance index of individual species collected from Oswego Lake August 8, 2005.

Table 4. Occurrence and abundance of submersed aquatic plants in Oswego Lake, August 2, 2005

August 2, 2005							
Date:	8/8/2005		Littoral sites with plants:	35		Species diversity:	0.85
Littoral depth (ft):	19		Number of species:	16		Native diversity:	0.84
Littoral sites:	37		Maximum species/site:	6		Rake diversity:	0.83
Total sites:	40		Mean number species/site:	2.15		Native rake diversity:	0.82
Secchi:	5.5		Mean native species/site:	2.08		Mean rake score:	3.17
Common Name		Site frequency	Relative density		Mean density	Dominance	
Eel grass		59.5	0.95		1.59	18.9	
Chara		51.4	1.08		2.11	21.6	
Coontail		37.8	0.81		2.14	16.2	
Spiny Naiad		13.5	0.14		1.00	2.7	
Sago pondweed		13.5	0.30		2.20	1.6	
Small pondweed		8.1	0.08		1.00	1.6	
Richardson's pondwe	ed	8.1	0.08		1.00	1.6	
Flatstem pondweed		8.1	0.11		1.33	2.2	
Eurasian watermilfoil		5.4	0.05		1.00	5.4	
Northern watermilfoil		5.4	0.05		1.00	5.4	
Whorled watermilfoil		5.4	0.16		3.00	3.2	
Curlyleaf pondweed		2.7	0.03		1.00	0.5	
Bladderwort		2.7	0.03		1.00	0.5	



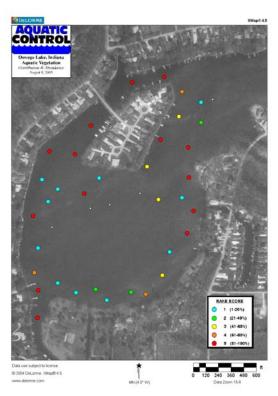


Figure 17. Oswego Lake, aquatic vegetation distribution and abundance, August 2, 2005.

A total of 16 species were collected of which 14 of the species were native. Eurasian watermilfoil and curlyleaf pondweed were the only exotic species collected. Eel grass was present at the highest percentage of sample sites (55%) but ranked second in relative density (Figure 18). Chara ranked second in site frequency (47%), but ranked first in relative density. Coontail ranked third in site frequency (35%), but was ranked forth in relative density (Figure 19). Spiny naiad ranked fourth in site frequency (12%), but ranked seventh in relative density. Northern watermilfoil, flatstem pondweed, sago pondweed, Richardson's pondweed, southern naiad, Eurasian watermilfoil, curlyleaf pondweed, small pondweed, whorled watermilfoil, and bladderwort were all present but at lower density and abundance. Location and density of Eurasian watermilfoil is illustrated in Figure 20 and curlyleaf pondweed is illustrated in Figure 21.



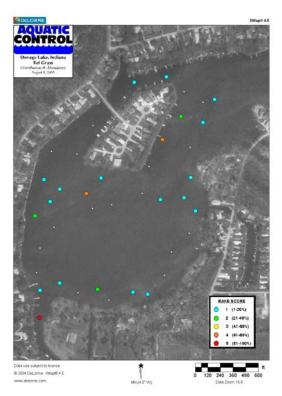


Figure 18. Oswego Lake, eel grass distribution and abundance, August 2, 2005.

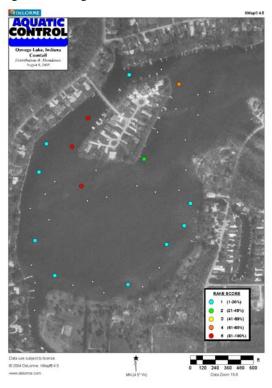


Figure 19. Oswego Lake, coontail distribution and abundance, August 2, 2005.



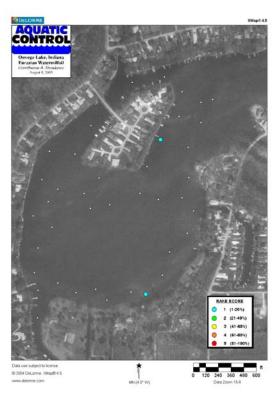


Figure 20. Oswego Lake, Eurasian watermilfoil distribution and abundance, August 2, 2005

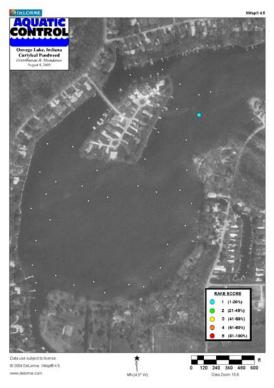


Figure 21. Oswego Lake, curlyleaf pondweed distribution and abundance, August 2, 2005



May Tier II survey, James Lake

On May 17, 2005 a tier II survey was completed on James Lake. A Secchi disk reading was taken prior to sampling and was found to be 16 feet. Plants were present to a maximum depth of 15 feet. Sixty-two sites were randomly selected within the littoral zone. Results of the sampling are listed in Table 4 and overall aquatic vegetation distribution and density is illustrated in Figure 22.

Table 5. Occurrence and abundance of submersed aquatic plants in James Lake, May 17, 2005.

May 17, 2005	5.						
Date:	5/17/2005		Littoral sites with plants:	51		Species diversity:	0.83
Littoral depth (ft):	15		Number of species:	9		Native diversity:	0.74
Littoral sites:	58		Maximum species/site:	5		Rake diversity:	0.82
Total sites:	64		Mean number species/site:	1.95		Native rake diversity:	0.72
Secchi:	16		Mean native species/site:	1.19		Mean rake score:	2.75
Common Name		Site frequency	Relative density		Mean density	Dominance	
Curlyleaf pondwee	d	48.3	0.79		1.64	15.9	
Coontail		48.3	0.93		1.93	18.6	
Chara		36.2	0.64		1.76	12.8	
Eurasian watermilf	oil	36.2	0.50		1.38	10.0	
Flatstem pondwee	d	20.7	0.21		1.00	4.1	
Elodea		17.2	0.36		2.10	7.2	
Whorled watermilfo	oil	5.2	0.05		1.00	1.0	
Water stargrass		1.7	0.09		5.00	1.7	
Eel grass		1.7	0.02		1.00	0.3	



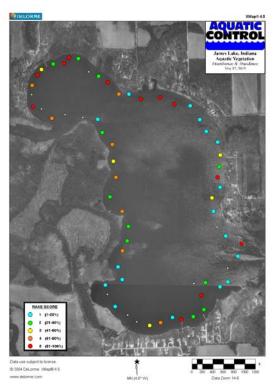


Figure 22. James Lake, aquatic vegetation distribution and abundance, May 17, 2005.

A total of nine species were collected of which two of the species were exotics, curlyleaf pondweed and Eurasian watermilfoil. Curlyleaf pondweed was present at the highest percentage of sample sites (43%) but ranked second in relative density (Figure 23). Coontail ranked second in site frequency (43%) but ranked first in relative density (Figure 24). Chara ranked third in site frequency (32%) and relative density (Figure 25). Eurasian watermilfoil ranked fourth in site frequency (32%) and relative density. Location and density of Eurasian watermilfoil is illustrated in Figure 26. Flatstem pondweed, elodea, whorled watermilfoil, water stargrass, and eel grass where also observed in lower percentages for site frequency and relative density.



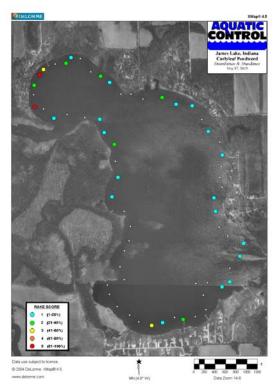


Figure 23. James Lake, curlyleaf pondweed distribution and abundance, May 17, 2005

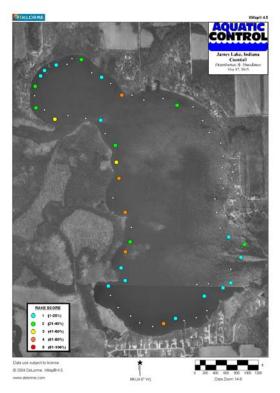


Figure 24. James Lake, coontail distribution and abundance, May 17, 2005



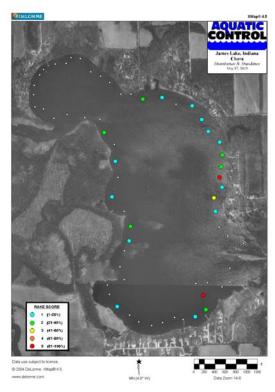


Figure 25. James Lake, chara distribution and abundance, May 17, 2005

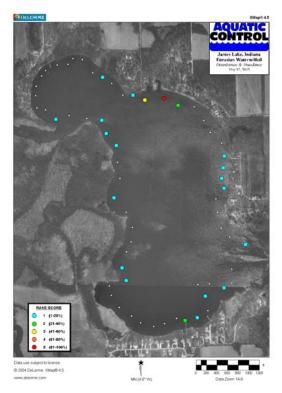


Figure 26. James Lake, Eurasian watermilfoil distribution and abundance, May 17, 2005



August Tier II survey, James Lake

The second round of tier II sampling took place on August 9, 2005. A Secchi disk reading was taken prior to sampling and was found to be 9 feet. Plants were present to a maximum of 23 feet. The same sixty-four sites were sampled in August as were in May. Results of the sampling are listed in Table 5 and overall aquatic vegetation distribution and density is illustrated in Figure 27. The bottom half of Table 5 illustrates the frequency of occurrence, relative density, mean density, and dominance index of individual species collected from James Lake August 9, 2005.

Table 6. Occurrence and abundance of submersed aquatic plants in James Lake, August 9, 2005

August 9, 200	<u>5. </u>						
Date: 8/9	9/2005		Littoral sites with plants:	56		Species diversity:	0.79
Littoral depth (ft):	23		Number of species:	14		Native diversity:	0.79
Littoral sites:	63		Maximum species/site:	4		Rake diversity:	0.69
Total sites:	64		Mean number species/site:	1.61		Native rake diversity:	0.69
Secchi:	9		Mean native species/site:	1.59		Mean rake score:	3.29
Common Name		Site frequency	Relative density		Mean density	Dominance	
Coontail		54.70	1.78		3.26	35.60	
Eel grass		37.50	0.63		1.67	12.50	
Chara		28.10	0.73		2.61	14.70	
Slender naiad		12.50	0.19		1.50	3.80	
Elodea		6.30	0.06		1.05	1.30	
Flatstem pondweed		4.70	0.05		1.00	0.90	
Water stargrass		3.10	0.03		1.00	0.60	
Southern naiad		3.10	0.03		1.00	0.60	
Northern watermilfo	il	3.10	0.03		1.00	0.60	
Whorled watermilfoi	I	1.60	0.02		1.00	0.30	
Richardson's pondw	/eed	1.60	0.02		1.00	0.30	
Duckweed sp.		1.60	0.02		1.00	0.30	
Small pondweed		1.60	0.08		5.00	1.60	
Eurasian watermilfo	il	1.60	0.02		1.00	0.30	



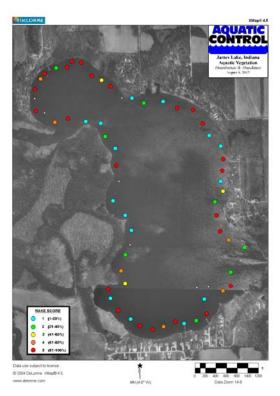


Figure 27. James Lake, aquatic vegetation distribution and abundance, August 9, 2005.

A total of 14 species were collected of which 13 of the species were native. Eurasian watermilfoil was the only exotic species collected. Coontail was present at the highest percentage of sample sites (54%) and had the highest relative density (Figure 28). Eel grass ranked second in site frequency (37%), but ranked third in relative density (Figure 29). Chara ranked third in site frequency (28%), but ranked second in relative density. Slender naiad, elodea, flatstem pondweed, water stargrass, southern naiad, northern watermilfoil, whorled watermilfoil, Richardson's pondweed, and greater duckweed were also collected, but at a lower abundance and density. Eurasian watermilfoil ranked last in site frequency and relative density. Location and density of Eurasian watermilfoil is illustrated in Figure 30.



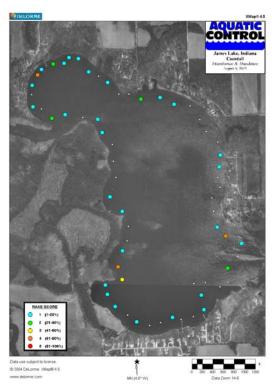


Figure 28. James Lake, coontail distribution and abundance, August 8, 2005

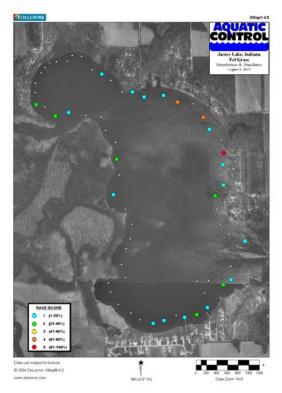


Figure 29. James Lake, eelgrass distribution and abundance, August 8, 2005



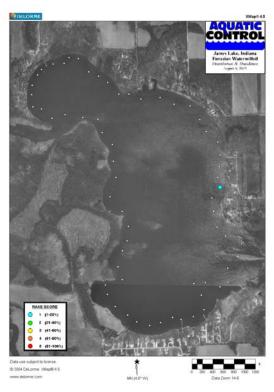


Figure 30. James Lake, Eurasian watermilfoil distribution and abundance, August 8, 2005

Plant Sampling Discussion

The LTPOA membership includes residents from all three lakes in the Tippecanoe Chain. These lakes are all connected to one another, but there are many differences in water quality, average depth, and shoreline development. These difference lead to variation in plant communities, and thus the plant sampling and sampling discussion focuses on the individual lakes.

Lake Tippecanoe Sampling Discussion

Lake Tippecanoe is the deepest natural lake in Indiana. This fact limits the amount of nuisance vegetation growth. However, there are dense beds of vegetation growing near shore and in high-use areas. This vegetation often leads to nuisance conditions. In the past, Eurasian watermifoil, curlyleaf pondweed, and eel grass have reached nuisance levels. Since 2003, the focus of LTPOA sponsored controls has been on this vegetation, primarily Eurasian watermilfoil. These treatments were completed with Renovate herbicide to selectively control milfoil while allowing native vegetation to replace the nuisance exotic species. These treatments were completed in order to meet the plant management goals of the association, which are to reduce nuisance conditions caused primarily by exotic species, while preserving and enhancing the native plant community. The sampling results appear to show that native vegetation has been preserved even while actively controlling nuisance exotics. This fact is illustrated in Figures 31-33, which shows an increase in native species abundance and diversity.



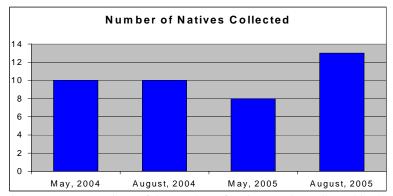


Figure 31. Lake Tippecanoe, comparison of the number of native species collected in the last four surveys.

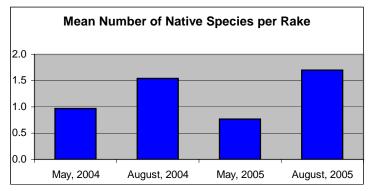


Figure 32. Lake Tippecanoe, comparison of number of native species per rake in the last four surveys.

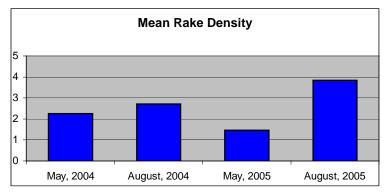


Figure 33. Lake Tippecanoe, comparison mean rake density in the last four surveys.

There appears to have been a significant decline in Eurasian watermilfoil density and abundance on Lake Tippecanoe since the spring of 2004 (Figure 34 & 35). This may be a result of actively treating Eurasian watermilfoil with systemic herbicides. The reduction in Eurasian watermilfoil is likely having a positive effect on the diversity and density of native plant species.



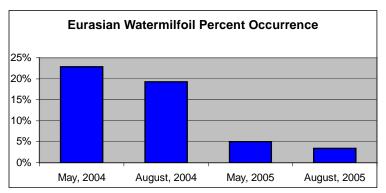


Figure 34. Lake Tippecanoe, Eurasian watermilfoil percent occurrence in the last four surveys.

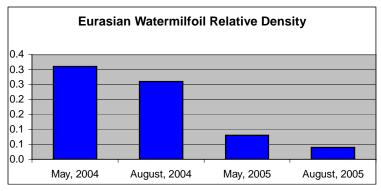


Figure 35. Lake Tippecanoe, Eurasian watermilfoil relative density in the last four surveys.

Curlyleaf pondweed continues to be a nuisance species in the spring and early summer. This species has been treated in areas where it occurred along with milfoil. However, these treatments were completed too late in the season to achieve any significant long-term control (treatments have taken place in late May, by this time curlyleaf pondweed has already produced its reproductive structures). Figures 36 and 37 illustrate the trends in curlyleaf pondweed over the last two seasons. It appears that density and abundance has dropped slightly over that time period. It is not clear why this perceived trend is taking place.

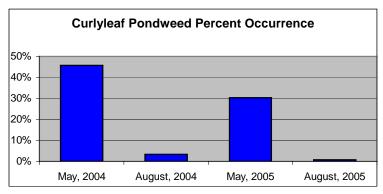


Figure 36. Lake Tippecanoe, curlyleaf pondweed percent occurrence in the last four surveys.



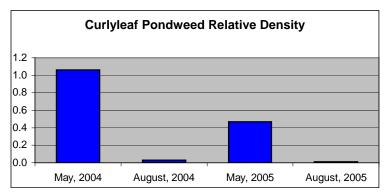


Figure 37. Lake Tippecanoe, curlyleaf pondweed relative density in the last four surveys.

Eel grass continues to be dense and abundant in late summer. This species is desired by fisheries and wildlife biologist as excellent fish cover and food for waterfowl. Understandably, there are restrictions on the amount of treatment that can be completed on this species.

Oswego Lake Sampling Discussion

Oswego Lake is much shallower that Lake Tippecanoe and thus tends to develop more nuisance conditions caused by aquatic vegetation. Eurasian watermilfoil and curlyleaf pondweed are the primary causes of these conditions. Over the last three years, Oswego Lake has received the largest percentage of LTPOA sponsored selective vegetation treatments. Over the last three years, these treatments have effectively reduced nuisance conditions and appear to have enhanced the native plant community. Figures 38-40 graphically illustrate the changes in the native plant community.

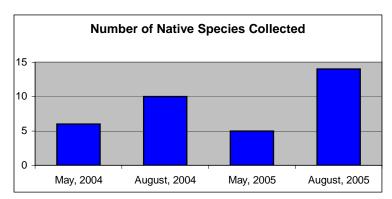


Figure 38. Oswego Lake, comparison of the number of native species collected in the last four surveys.



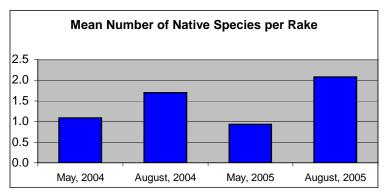


Figure 39. Oswego Lake, comparison of mean number of native species per rake in the last four surveys.

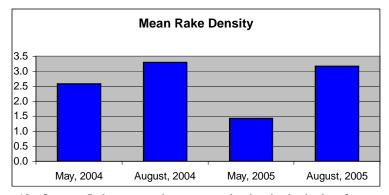


Figure 40. Oswego Lake, comparison mean rake density in the last four surveys.

There appears to have been a significant decline in Eurasian watermilfoil density and abundance on Oswego Lake since the spring of 2004 (Figure 41 & 42). This is likely the result of actively treating Eurasian watermilfoil with systemic herbicides. The reduction in Eurasian watermilfoil is likely having a positive effect on the diversity and density of native plant species.

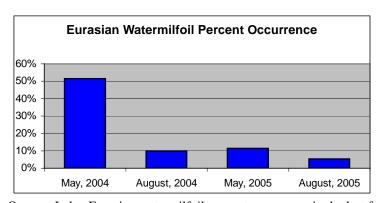


Figure 41. Oswego Lake, Eurasian watermilfoil percent occurrence in the last four surveys.



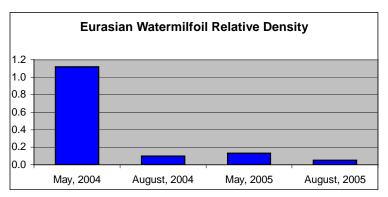


Figure 42. Oswego Lake, Eurasian watermilfoil relative density in the last four surveys.

Much like on Lake Tippecanoe, curlyleaf pondweed continues to be a nuisance species in the spring and early summer on Oswego Lake. Figures 43 and 44 illustrate the trends in curlyleaf pondweed over the last two seasons. It appears that density and abundance has dropped slightly over that time period. It is not clear why this perceived trend is taking place.

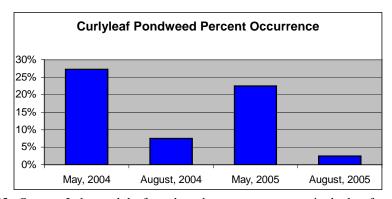


Figure 43. Oswego Lake, curlyleaf pondweed percent occurrence in the last four surveys.

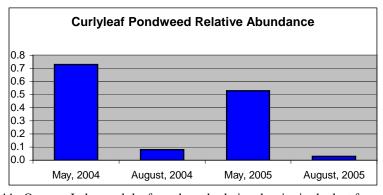


Figure 44. Oswego Lake, curlyleaf pondweed relative density in the last four surveys.



James Lake Sampling Discussion

In 2003 and 2004, there was very little impairment on James Lake created by nuisance exotic species, to the point that no LTPOA sponsored treatments were completed (Aquatic Control only treated milfoil in the most impaired areas due to a limited LTPOA budget, James Lake had milfoil but not to the extent of the other two lakes). However, in 2005 it appeared that the lack of treatments allowed Eurasian watermilfoil to spread, and a large percentage of the lake was treated with Renovate herbicide. Eurasian watermilfoil decreased significantly following May treatments (Figures 45 & 46).

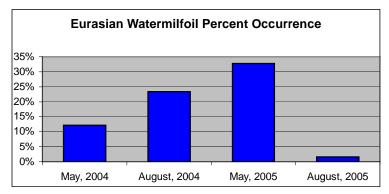


Figure 45. James Lake, Eurasian watermilfoil percent occurrence in the last four surveys.

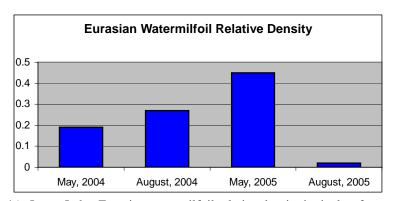


Figure 46. James Lake, Eurasian watermilfoil relative density in the last four surveys.

There appeared to be no negative effect on native vegetation following spring herbicide applications. This is illustrated in Figures 47-49, which show little significant change in the plant community over the last four surveys. Continued milfoil control may actually help increase the diversity metrics by reducing competition.



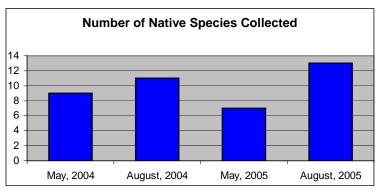


Figure 47. James Lake, number of species collected in the last four surveys.

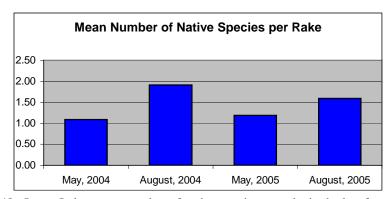


Figure 48. James Lake, mean number of native species per rake in the last four surveys.

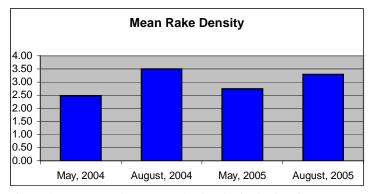


Figure 49. James Lake, mean rake density in the last four surveys.

Much like the other two lakes, curlyleaf pondweed creates nuisance conditions in the spring and early summer. This species may also be limiting or reducing native species abundance and diversity by competing with these species. Figures 50 and 51 graphically illustrate the density and abundance of this species in the last four surveys.



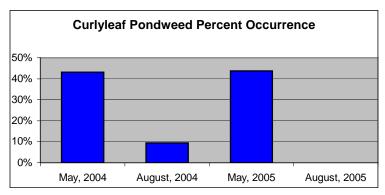


Figure 50. James Lake, curlyleaf pondweed percent occurrence in the last four surveys.

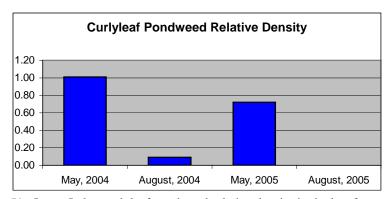


Figure 51. James Lake, curlyleaf pondweed relative density in the last four surveys.

2005 VEGETATION CONTROL

In general, the goal of the vegetation management plan is to control nuisance aquatic species, with a focus on exotic nuisance plants, while preserving and enhancing beneficial native vegetation. For the past three seasons, LTPOA has funded treatment of Eurasian watermilfoil in main lake areas. Treatment areas were chosen by Aquatic Control plant managers following spring surveys. Only the densest areas of milfoil were treated (ideally, LTPOA would fund the treatment of all areas of milfoil, but due to a limited budget it was left up to Aquatic Control to select the most impaired areas for treatment). In 2003 and 2004 these treatments focused primarily on Oswego Lake with some scattered areas in Lake Tippecanoe. James Lake was not treated in 2003 and 2004, even though there was some milfoil present. In 2003 and 2004 it was determined that Oswego and Tippecanoe had more impaired areas. By the 2005 spring survey, it became apparent that long-term control was being achieved on Oswego and Lake Tippecanoe (see Figures 34, 35, 41, & 42). There were still some small nuisance patches, but overall there was a significant reduction in Eurasian watermilfoil density and abundance. However, milfoil was rapidly spreading in James Lake where no treatments had been completed (see Figures 45 & 46). On May 24, 2005 a total of 10.0 acres of Eurasian watermilfoil was treated on James Lake, 7.5 acres on Lake Tippecanoe, and 4.0 acres on Oswego (Figure 52). Renovate herbicide was used to treat the milfoil and a low dose of Aquathol K was also added to treat curlyleaf pondweed that was also present within the



milfoil beds (if the treatments only focused on milfoil then when the plants dropped out they may have been quickly replaced by curlyleaf pondweed). These treatments were considered successful (personal communication and observation, 2005)

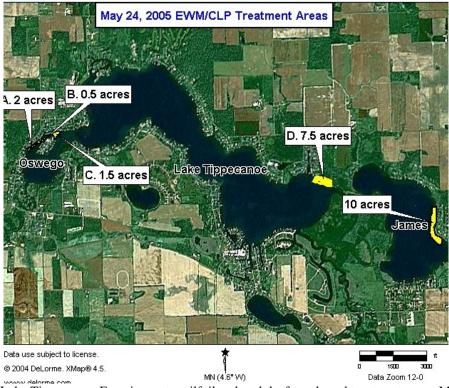


Figure 52. Lake Tippecanoe, Eurasian watermilfoil and curlyleaf pondweed treatment areas, May 24, 2005

Along with the mixed milfoil/curlyleaf pondweed treatments, in 2005 there were areas on Oswego that were only treated with Aquathol K for control of curlyleaf pondweed (Figure 53). This species appeared to have replaced the dense milfoil beds that were present in the same areas in 2004. This treatment was strictly to reduce nuisance conditions. There will likely be no long-term benefits from treating curlyleaf pondweed this late in the season.





Figure 53. Oswego Lake, curlyleaf pondweed only treatment areas, May 24, 2005.

LTPOA also contracted Aquatic Control to complete treatment of nuisance areas of eel grass in late summer. In July, LTPOA representatives, IDNR representatives, and Aquatic Control plant managers visually inspected traditionally nuisance eel grass areas. IDNR approved treatment of 4.0 acres of eel grass. Treatment was completed on July 27 and is illustrated in Figure 54. Nautique herbicide was used in this treatment.



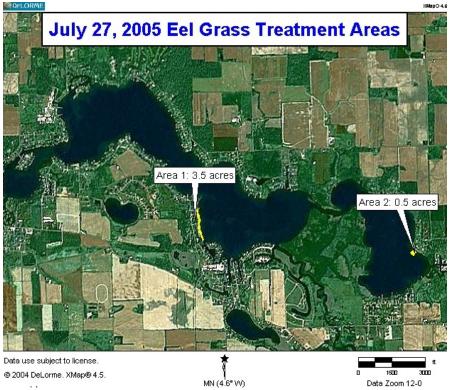


Figure 54. Lake Tippecanoe Chain, eel grass treatment areas, July 27, 2005.

ACTION PLAN AND BUDGET UPDATE

The 2005 vegetation management plan recommended treatment of Eurasian watermilfoil everywhere it occurred within the three lakes. However, due to miscommunication, the grant application did not get filled out in time and no funding was awarded for vegetation controls. The Association could not afford to treat this species everywhere it occurred, so only the worst areas were treated. Due to previous proactive actions taken by the Association, the milfoil population was much lower in 2005 when compared to previous years (this was likely a combination of aggressive treatment with systemic herbicides and unknown environmental factors). It appears that curlyleaf pondweed is taking the place of Eurasian watermilfoil in many areas where long-term milfoil control has occurred. In order to control this species, early season treatments should be completed to eliminate curlyleaf pondweed before it produces reproductive structures. These treatments should be completed in April, or when the water reaches 50 degrees. Aquathol K herbicide is the best product for the job (see Page 50 of the original plan for further discussion of this type of treatment). Based on spring sampling results and visual surveys, it is estimated that up to 84 acres of curlyleaf pondweed will require treatment on the Tippecanoe Chain (44 acres on Lake Tippecanoe, 28 acres on James, and 12 acres on Oswego). Figure 55 is an estimate of areas that may require treatment next season. This treatment should be completed for three consecutive seasons in order to reduce curlyleaf pondweed to a level that can be easily managed exclusively by the Association. Treatment areas should be mapped out with an early spring visual survey using GPS and a Delorme mapping system.



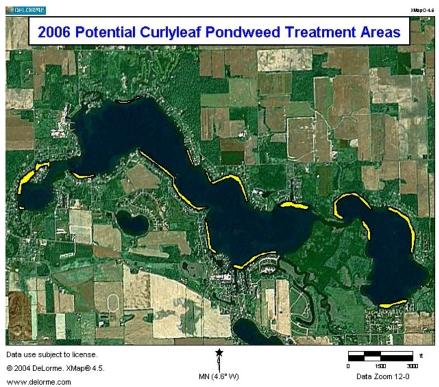


Figure 55. Tippecanoe Chain, potential curlyleaf pondweed treatment areas.

As previously discussed, LTPOA has been actively treating Eurasian watermilfoil for the last three seasons with Renovate herbicide. Sampling results indicate that long-term control of this species is being achieved. There has been a steady decline in Eurasian watermilfoil since the inception of the treatment program in 2003. However, this species should continue to be managed in order to keep it from returning to pre-2003 levels. Eurasian watermilfoil should be treated anywhere it occurs within the chain of lakes. Figure 56 is an educated guess as to where this species may occur in 2006. This figure was created by reviewing past sampling data and visual surveys. It is estimated that up to 37 acres may require treatment on the Tippecanoe Chain in 2006 (17 acres on Lake Tippecanoe, 12 acres on James, and 8 acres on Oswego). It is likely that less than 37 acres will require treatment in following seasons. In two to three years it may become difficult to find any Eurasian watermilfoil plants in the three lakes.



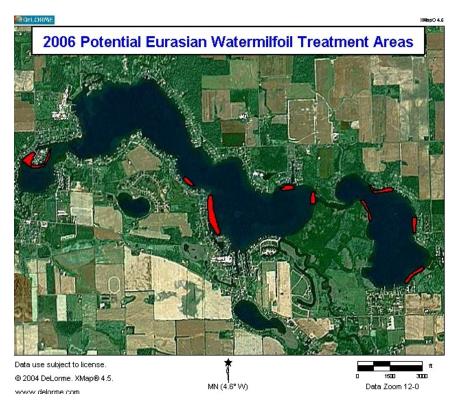


Figure 56. Tippecanoe Chain, potential Eurasian watermilfoil treatment areas.

Eel grass is a beneficial native species that typically reaches its maximum density in late summer. This species has created some nuisance conditions in the three lakes. Since 2004, LTPOA has treated some of the most impaired areas. These areas were only treated after inspections from the District Fisheries Biologist. Traditional treatment areas can be treated without inspection, but if LTPOA wishes to expand out of these areas additional inspections will be required. This treatment will not be eligible for funding by the LARE program. It is estimated that between 5-10 acres may require treatment next season.

Listed below is a budget estimate for vegetation controls over the next four seasons. The potential LARE funded items include the curlyleaf pondweed treatment, Eurasian watermilfoil treatment, and continued vegetation sampling (two tier II surveys per season during the same time as the 2004 and 2005 surveys and one tier I survey in late summer). LTPOA should request \$48,025 from the LARE program. Treatment of eel grass will not be funded by LARE.



Table 7. Four year budget estimate for plant management on the Tippecanoe Chain.

	2006	2007	2008	2009
Curlyleaf pondweed treatment:	\$27,300	\$27,300	\$27,300	\$0
Eurasian watermilfoil treatment:	\$15,725	\$12,750	\$8,500	\$4,250
Eel grass treatment:	\$3,750	\$3,750	\$3,750	\$3,750
Plant sampling and plan update:	\$5,000	\$5,000	\$5,000	\$5,000
Eco-zone feasibility study:	\$10,500	-	-	-
Total potentially funded by LARE:	\$58,025	\$45,050	\$40,800	\$9,250
Total funded by LTPOA (does not include 10% match):	\$3,750	\$3,750	\$3,750	\$3,750

In 2005, a filamentous blue-green algae problem developed along the eastern side of Lake Tippecanoe. The algae was blown into some coves and piers making boating difficult. Some residents hired professional applicators to complete treatment in order to open up boating lanes. This type of algae is very difficult to chemically control and often requires multiple maintenance treatments. The LARE program will not fund chemical algae treatments. It is the belief of many residents that the bluegreen algae problem is beginning in Grassy Creek and once it reaches Lake Tippecanoe it follows the prevailing winds and currents (the exact species and where it comes from should be confirmed with sampling in the summer of 2006). It is the recommendation of IDNR that the LTPOA attempt to create and ecozone along the eastern shoreline of Lake Tippecanoe (Figure 57). This area contains a shallow shelf that should grow beneficial emergent, rooted floating, and submersed vegetation. However, due to summer boat traffic, vegetation cannot establish in this area. It is theorized that if native vegetation is allowed to establish that this will help filter nutrients and floating algae thus preventing this species from creating nuisance conditions. This area, at one time, was also likely an excellent spawning and brood area for many game fish species in Lake Tippecanoe and protecting this ecosystem would be beneficial to fish production within the lakes. Creation of the eco-zone would entail buoying off the area, preventing high speed boating, and thus allowing native vegetation to return. It is recommended that LTPOA begin working to create an eco-zone in this area. An Eco-zone feasibility study should begin in the spring of 2006. The cost of this study has been included in the 2006 budget.





Figure 57. Lake Tippecanoe, potential eco-zone areas.

PUBLIC INVOLVEMENT

A public meeting was held on October 26, 2005 at the North Webster Community Center. This meeting was designed to gain further input from lake users, to educate lake users of the 2005 vegetation management activities, and to inform users of potential vegetation management plan updates. Approximately fifteen individuals were in attendance and ten of those individuals filled out a lake user survey form. All survey participants were lake property owners of which 60% lived on Lake Tippecanoe, 30% on James, and 10% on Oswego. Ninety percent of survey participants have lived on the lakes for more than 10 years. All individuals used the lake for boating and swimming, while 80% also used the lake for fishing. All individuals were in favor of continued vegetation control efforts. One of the main topics of concern was an increase in the amount of filamentous algae seen in 2006. The main areas of algae were on the eastern half of Lake Tippecanoe. It is believed that the algae is beginning in Grassy Creek and moving out into the lake.



Appendix Update-2005 Sampling Data *Lake Tippecanoe*

Lake	Date																			
		Latitude	Longitus 5 -85.777	de Site	Depth	RAKE	MYSP2	POCR3	CEDE4	CH?AR	VAAM3	POZO	PORI2	MYVE	ZODU		NatSpeNun	n 8	pecies Cod	
Tippecanoe Tippecanoe	5/17/05	41.328	4 -85.776	33 4	1 5.		-	1	-	1		1					1	2	CEDE4	Bur marigold Coontail
ippecanoe	5/17/05	41.3287	2 -85.77	48 4	13 8.					-								0	CH?AR	Chara
ppecanoe			9 -85.77		14 3.					1								1	ELCA7	Elodea
ppecanoe			1 -85.773		5 5					1							1	1	LEMN	Duckweeds
ppecanoe			8 -85.770		16 14				1								1	1	MYHE	Broadleaf watermilfoil
ppecance	5/17/05	41.3314	3 -85.769	93 4	17 3.													0	MYSI	Northern watermilfoil
ppecanoe	5/17/05	41.3315	9 -85.768		18 11.	.0											0	0	MYSP2	Eurasian watermilfoil
ippecanoe			7 -85.767		19 6.			1	1								2	1	MYVE	Whorled watermilfoil
ippecanoe			2 -85.766		3.												0	0	NAFL	Slender naiad
ippecanoe	5/17/05	41.3297	2 -85.766	24 5	1 20.													0	NAGU	Southern waternymph
ippecanoe			2 -85.765		2 4.			2				1						1	NAMA	Spiny naiad
Tippecanoe			9 -85.764		19.		-		-	-								0	NAMI	Brittle waternymph
Tippecanoe			6 -85.763 6 -85.762		54 20. 55 3.		_		-		-	-			-			0	NELU	American lotus
Tippecanoe			2 -85.762		55 3. 56 3.		-	1		1	-	1		-	-			2		Nitella
Tippecance Tippecance			4 -85.762		57 5.			2		1	1			-	-			2	NULU	No aquatic vegetation
Tippecanoe			3 -85.761		58 12.			1				1			_			1	NYTU	Yellow pond fily
Tippecance			5 -85.761		59 5.			3				-						0	POAM	White water lily Large-leaf pondweed
Tippecanoe			8 -85.761		30 4.			1				1						1	POCR3	Curly-leaf pondweed
Tippecanoe			2 -85.760		31 15.				1									1	POFO3	Leafy pondweed
Tippecanoe	5/17/05	41.3245	3 -85.759	98 6	3.													0		Variable pondweed
Tippecanoe			3 -85.758		3.			4									1	0	POIL	Illinois pondweed
Tippecanoe	5/17/05	41.324	4 -85.757	48 6	54 5.			1										0	PONO2	American pondweed
ippecanoe			2 -85.756		55 16.													0	POPE6	Sago pondweed
ippecanoe			3 -85.756		36		-	1		-	1							1	POPR5	White-stemmed pondweed
ippecanoe			7 -85.757		57 5. 58 8.		-		-	-		1						1	POPU7	Small pondweed
ippecance								-	-	-	-			-				0	PORI2	Richardson's pondweed
ippecance ippecance			4 -85.757 8 -85.757		59 4. 70 8.		1	4										0	POZO UTMA	Flat-stemmed pondweed
ippecance ippecance			9 -85.75		71 3.			1	1			1				-		0	VAAM3	Common bladderwort
ppecanoe			4 -85.756		2 5.			3				1						1		Wild celery, eel grass Watermeal
ippecanoe			1 -85.755		73 7.			3	1			1						2	ZAPA	Horned pondweed
ppecanoe			1 -85.755		74 8.													0	ZODU	Water stargrass
Specanoe	5/17/05	41.320	4 -85.755	43 7	75 7.	.0 2			1					2				2		
ippecanoe	5/17/05	41.319	6 -85.756	44 7	76 7.				1					1				2	Count	
Tippecanoe			4 -85.75		77 3.	.0 1							1				1	1		
Tippecanoe			2 -85.757		78 3.								1	1				2		
Tippecanoe			1 -85.755		8.													0		
Tippecanoe			6 -85.754		30 3.					1								1		
Tippecanoe			2 -85.753		16.				-	-								0		
Tippecanoe	5/17/05		8 -85.753		32 7.		1	1	-	1	-	-	-	-		-	3	1		
Tippecanoe			3 -85.752		33 2. 34 4.			-	-					1	-		0		-	
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Tippecanoe			8 -85.750		36 3.			1	1								1	1	-	
Tippecanoe			4 -85.749		37 . 3.							1						1		
ppecanoe	5/17/05	41.318	6 -85.748	65 8	38 3.				-						,			0		
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ippecanoe	5/17/05	41.319	4 -85.746	99 9	91 4.				1									0		
ippecanoe	5/17/05	41.3186	1 -85.746	38 9	92 2			1										0		
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ippecanoe			9 -85.742				-		1		-	-					1	1		
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0	Bur marigold	Coontail	Chara	Elodea	Duckweeds	Broadleaf watermilfor	Northern watermilfoil	Eurasian watermilfoil	Whorled watermiffoil	Slender naiad	Southern waternymph	Spiny naiad	Brittle waternymph	American lotus	Nitella	NOAQVG No aquatic vegetation	Yellow pond fily	White water fily	Large-leaf pondweed	Curly-leaf pondweed	Leafy pondweed	Variable pondweed	Ilinois pondweed	American pondweed	Sago pondweed	White-stemmed pondweed	Small pondweed	Richardson's pondweed	Flat-stemmed pondweed	Common bladderwort	Wild celery, eel grass	Watermeal	Ноглед ролдмеед	Water stargrass									
3		CEDE4	CH7AR		LEMN	MYHE	MYSI	MYSP2	MYVE		NAGU			NELU	NIPTE	NOAQVG	NOLU	UTYN			POFO3	POGR8				POPRS		PORIZ	POZO			WORLF		ZODO		Count							
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	-85.7513	-85.7517	-85.7529	-85.7543	-85.7558	-85.7567	-85.7575	-85.7583	-85.7596	-85.7603	-85.7608	-85.7614	-85.7619	-85.7629	-85.7641	-85,7655	-85.767	-85,7685	-85.7698	-85.7714	-85.773	-85.7743	-85.7746	-85.7757	-85.7765	-85.7776	-85.7782	-85.7791	-85.7798	-85.7794	-85.7786	-85.7788	-85.778	-85.7781	-85.7784	-85.7793	-85.7796	-85.7805	-85.7815	-85.7816	-85.7806	-85.7796	
	8/8/05 41.32556	8/8/05 41.32654	8/8/05 41.32734		8/8/05 41.3272	8/8/05 41.32694	8/8/05 41.32779	8/8/05 41.32888	41,3291	41.33007	8/8/05 41.33114	8/8/05 41.33231	8/8/05 41.33349	8/8/05 41,33461	8/8/05 41.33572	8/8/05 41.33658	8/8/05 41.33779	8/8/05 41.33769	8/8/05 41.33721	8/8/05 41.33702	8/8/05 41.33737			8/8/05 41.33636	8/8/05 41.33564	8/8/05 41.33511	8/8/05 41.33606	8/8/05 41.33552	8/8/05 41.33494	8/8/05 41.33435	8/8/05 41.33321	8/8/05 41.33257	8/8/05 41.3321	8/8/05 41.3313	8/8/05 41.33013	8/8/05 41.33042	8/8/05 41.32986	8/8/05 41,33006	8/8/05 41.32991	8/8/05 41.32946		8/8/05 41.32835	4
Lake Date	8/8 eosauce	gbecance 8/8										gyecance 8/8				-	-		8/8 8/8	S/8 8/8	8/8 8/8	bbecance 8/8	B/8 ecence	B/B 8/B			Topecanoe 8/8					(B/B ecanoe	B/B 8/B	ppecance 8/8		-				S/8 8/8	B/8 8/8	B/8	1



Oswego Lake

Lake	Date	Latitude	Longitude	Site	Depth	RAKE	MYSP2	POCR3	CEDE4	CH?AR	POZO	PORI2	MYVE	SpeNum	NatSpeNum	Species Cod	es
Oswego	5/17/05	41.32948		1	6.0	1			1		1			2	2	BIBE	Bur marigold
Oswego	5/17/05	41.32934	-85.7856	2	6.0	1	1	1		1				3		CEDE4	Coontail
Oswego	5/17/05	41.3291	-85.7839	3	5.0	1		1	1		1			3	2	CH?AR	Chara
Oswego	5/17/05	41.32845	-85.784	4	4.0	1				1	1			2		ELCA7	Elodea
Oswego	5/17/05	41.32786	-85.7846	5	4.0	1			1	1	1			3	3	LEMN	Duckweeds
Oswego		41.32716		6	6.0	1			1					1	1	MYHE	Broadleaf watermilfoil
Oswego	5/17/05	41.32646		7	6.0	1	1				1			2	1	MYSI	Northern watermilfoil
Oswego		***************************************	-85.7864	8	19.0									0	0	MYSP2	Eurasian watermilfoil
Oswego				9	5.0									0	0	MYVE	Whorled watermilfoil
Oswego		41.32748		10	6.0	1		1	1					2	1	NAFL	Slender naiad
Oswego				11	7.0	5	2	5	1					3	1	NAGU	Southern waternymph
Oswego	5/17/05			12	5.0	5		5	2					2	1	NAMA	Spiny naiad
Oswego	5/17/05			13	5.0	5		5						1	0	NAMI	Brittle waternymph
Oswego		41.32658		14	6.0						0.10			0	0	NELU	American lotus
Oswego	5/17/05	41.32646	-85.7872	15	8.0	1	1							1	0	NI?TE	Nitella
Oswego	5/17/05	41.32631	-85.7847	16	7.0	1						1		1	1	NOAQVG	No aquatic vegetation
Oswego	5/17/05	41.32635	-85.7839	17	5.0	1		1			1		1	3	2	NULU	Yellow pond lily
Oswego		41.32601	-85.7835	18	3.0	1				1				1	1	NYTU	White water lily
Oswego	5/17/05	41.32608	-85.787	19	15.0									0	0	POAM	Large-leaf pondweed
Oswego	5/17/05	41.32625	-85.7885	20	5.0	1				7 7 7 7 7		1		1	1	POCR3	Curly-leaf pondweed
Oswego	5/17/05	41.32588	-85.789	21	3.0	1			1					1	1	POFO3	Leafy pondweed
Oswego	5/17/05	41.32559	-85.7884	22	19.0									0	0	POGR8	Variable pondweed
Oswego	5/17/05	41.32505		23	14.0									0	0	POIL	Illinois pondweed
Oswego	5/17/05	41.32441	-85.789	24	5.0	1		1	1		700		1	3	2	PONO2	American pondweed
Oswego	5/17/05	41.32396		25	3.0	1				1				1	1	POPE6	Sago pondweed
Oswego	5/17/05	41.32324		26	3.0	1				1	1		G. B. C. S.	2	2	POPR5	White-stemmed pondweed
Oswego	5/17/05	41.32415	-85.7882	27	8.0	1		1					1	2	1	POPU7	Small pondweed
Oswego	5/17/05	41.32389	-85.7875	28	4.0	2				2				1	1	PORI2	Richardson's pondweed
Oswego	5/17/05	41.32398	-85.7869	29	12.0	1							1	1	1	POZO	Flat-stemmed pondweed
Oswego	5/17/05	41.3237	-85.7865	30	3.0	1				1				1	1	UTMA	Common bladderwort
Oswego	5/17/05	41.3239		31	12.0	1			1					1	1	VAAM3	Wild celery, eel grass
Oswego	5/17/05	41.32386		32	5.0	1				1				1	1	WO?LF	Watermeal
Oswego	5/17/05	41.32434	-85.7846	33	5.0									0	0	ZAPA	Horned pondweed
Oswego	5/17/05	41.32495		34	15.0									0	0	ZODU	Water stargrass
Oswego	5/17/05	41.32543	-85.7837	35	5.0	1					1			1	1		9
Oswego	5/17/05	41.32688	-85.7836	36	3.0	1				1			1	2	2	Count	34
Oswego	5/17/05	41.32765	-85.7837	37	2.0	1				1				1	1	1550.11	
Oswego	5/17/05	41.3283	-85.7832	38	2.0	1					1			1	1		
Oswego	5/17/05	41.32882	-85.7832	39	3.0									0	0		
Oswego	5/17/05	41.3289	-85.7828	40	4.0			1000						0	0		



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	Bur marigold	Coontail	Chara	Elodea	Dirckweeds	Broadleaf watermilfoil	Northern watermilfoil	Eurosian watermilfoil	Whorlod watermiffeil	Writing watermind	Siender nalad	Southern waternymph	Spiny naiad	Brittle waternymph	American lotus	Nitella	NOAQVG No aquatic vegetation	Yellow pond lily	White water lily	Large-leaf pondweed	Curly-leaf pondweed	l eafy pondweed	Variable pondweed	Illinois pondweed	American pondweed	Sago pondweed	White-stemmed pondweed	Small pondweed	Richardson's pondweed	Flat-stemmed pondweed	Common bladderwort	Wild celery, eel grass	Watermeal	Homed pondweed	Water stargrass						
3		CEDE4 (CH7AR	ELCA7				2					_		NELU	NIPTE	NOAQVG	NULU	UTW		1				22	POPE6		POPU7	PORIZ	POZO	UTMA	VAAM3	WO?LF	ZAPA	NOOZ		Count				
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		0.70449	5.78559	5.78388	5.78398	5.78462	5.78509	5.78533	5.78637	5.78674	5 78757	2 78702	2 700AE	2,70043	2./86/1	5./881/	5.78725	5.78469	5.78387	5.78349	5.78703	5.78849	5.78901	5.78836	5.78884	5.78896	5.78884	5.78886	5.78817	5.78753	5.78686	5.78648	9,7006	5./8513	5.78456	85.7843	85.7837	5.78304	5.78366	5./8322	5.78322
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H	D	Oswego	Oswego	Oswego	Oswego	Oswego	Oswedo	Oswedo	Oswedo	Demedo	1	Oswego	Oswego	Oswego	Oswego	Оѕмедо	Oswego	Oswego	Oswego	Oswego	Оѕмедо	Oswego	Овмедо	Oswego	Овмедо	Oswego	Oswego	Oswego	Oswego	Oswego	Oswego	Oswego									



James Lake

Section 1,115 1,1228 4,728 1,0 20 1 1 1 1 1 1 1 1 1	Lake	Date		Longitude	Site	Depth	RAKE	MYSP2	POCR3	CEDE4	CH?AR	VAAM3	ELCA7	POZO	MYVE	ZODU	SpeNum	NatSpeNum	Species Coo	les
Section 1,100 1,	James	5/17/05	41.32285	-85.7336	160	22.0			-											
Section Sect	James				161	3.0														
Section 1,1976	James	5/17/05	41.32261	-85.73136			1	1	1	1										
Section Sect	James							,		-										
Secondary Seco	James									2					_	_				
Section 1,196 1,	1																			
Section Sect	-											-		- 1		_	-	-		
March Marc										-					_					
STITISE 131706 679066 199 40 2 2 2 1 1 2 2 NATE Series read 141706 141								_	- 1	-		-		1				-		
STITION 13 15 15 15 15 15 15 15	17.045									4										
STITION 13,150, 67,2696 171 3 0 4 1 1 1 1 1 1 1 1 1															- 1			-		PARTY OF THE PARTY
STITUS 413-149 527-205 172 170 1 1 1 1 1 2 2 NAME Brits setemptry 1 1 2 2 NATE National Parameters 171-15 1 1 1 1 2 2 NATE National Parameters 171-15 1 1 1 2 2 NATE National Parameters 171-15 1 1 1 2 2 NATE National Parameters 171-15 1 1 1 2 2 NATE National Parameters 171-15 1 1 1 1 2 2 NATE National Parameters 171-15 1 1 1 1 1 2 2 NATE National Parameters 171-15 1 1 1 1 1 1 1 1 1																				Southern waternymph
STITION 13/14/1 15/2409 178 50 1 1 1 1 2 2 NELL American blas Amer	-																	-	NAMA	Spiny naiad
March Marc	373														. 1		3	2	NAMI	
STROS 13/354 67/3709 175 18-0	-							1						1/1			2	1	NELU	American lotus
Section Sect	James						1			1				1		- 11	2	2	NITE	Nitella
### \$1776 \$13791 \$5705 \$170 \$3 0 1 1 1 1 1 NNU Vebor gord by #### \$177 \$50 1 1 1 1 NNU Vebor gord by #### \$177 \$50 1 1 1 1 NNU Vebor gord by #### \$177 \$50 1 1 1 1 NNU Vebor gord by #### \$177 \$50 1 1 1 1 NNU Vebor gord by #### \$177 \$50 1 1 1 1 NNU Vebor gord by #### \$177 \$50 1 1 1 1 NNU Vebor gord by #### \$177 \$50 1 1 1 1 NNU Vebor gord by #### \$177 \$50 1 1 1 1 NNU Vebor gord by #### \$177 \$50 1 1 1 1 NNU Vebor gord by #### \$177 \$50 1 1 1 1 1 NNU Vebor gord by #### \$177 \$50 1 1 1 1 1 NNU Vebor gord by #### \$177 \$50 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	James																0	0	NOAQVG	No aquatic vegetation
STROS 13/24 57/26 178 150	James					3.0	1				1						1	1		
March Marc	James				177	15.0								- 1			1	1	NYTU	
Section Sect	James																0	0		
March Marc	James				179	3.0	3		3											
### 9,1706 4,13124 48-782 191 60 1	James	5/17/05	41.31208	-85.72702	180	5.0	4		1	4				1			3			
Section Sect	James	5/17/05	41.31234	-85.7262	181	6.0	1			1										
### 917/05 1413/25 157/26 158 30 2 1 1 2 1 POWCE Affects provised American provise	James							2	2					1						
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APPENDIX UPDATE-Vegetation Control Permits

Lake Tippecanoe

INSTRUCTION	APPLICATION VEGETATION State Form 26727 (Approved State Boo Whole Lake C IS: Please print or ty	CONTE (R / 11-03 ard of Ac X heck type	ROL PERMIT 3) counts 1987 Multiple Treatment Areas of permit	Lice	OR OFFICE USE ON ense No. te Issued	LY	Division of Commerci 402 West Washing	Page 1 of 6 NATURAL RESOURCES Fish and Wildlife ial License Clerk glon Street, Room W273 polis, IN 46204
Applicant's Nar	ne			Lak	e Assoc. Name			
	Lake Tipped	anoe F	OA			Lake T	ippecanoe POA	
Rural Route or	Street	67	'EMS T 49A Lane				Phone Number 574-	834-2185
City and State			Companyon INI				ZIP Code	40507
Certified Applic	ator (if applicable)		Syracuse, IN	Cor	mpany or Inc. Name		Certification Number	46567 r
David Davida av	0						Discos Nissahar	
Rural Route or	Street						Phone Number	
City and State							ZIP Code	
Lake (One app	lication per lake)			Nea	arest Town		County	
	Lake Tipp	oecano	e		North Webs	ter	Ko	sciusko
Does water flow	w into a water supply						Yes	X No
Please comp	lete one section for	EACH t	reatment area. Attach la	ake ı	map showing treatm	ent area and	d denote location of a	any water supply intake.
Treatment Area	a# 1		LAT/LONG or UTM's	Tre	eatment of EWM and	CLP where	they occur (no more t	than 40 acres, see avmp)
Total acres to be controlled	e <40	Propose	ed shoreline treatment len	ath ((ft)	Perpendicula	ar distance from shore	eline (ft)
Maximum Dep Treatment (th of		d date(s) of treatment(s)	5	Early Spring Depend			()
Treatment met			Physical		Biological Control		chanical	
Based on treat			cal used, method of physi	cal c				and stocking
rate for biologic			rbicide for EWM con					
Plant survey m		/ato no	Visual Other (sp				005 May Tier II (20	
Plant Survey III				ecii	Check if Target	lla IIOIII 20		
	Aquatic F	lant iva	ame		Species		Relative Abui	
	Curlyleaf	Pondw	reed		X		40	
	Flatstem	Pondw	reed				15	
	CI	hara					15	
	Co	ontail					15	Kasa III.
	Northern '	Watern	nilfoil				5	
	Eurasian	Watern	nilfoil		Х		5	
	Richardsor	ı's Pond	dweed				2	
	Eel	Grass				>	1	
	Water	Stargra	ss				1	
	Ek	odea					1	
1								



						Page	2 of _6
Treatment Area #	2		LAT/LONG	G or UTM's C	enter of bed @ N	41.32835 W85.77511	
Total acres to be controlled	1.86	Propose	ed shoreline t	reatment length	(ft) 996	Perpendicular distance from shoreline (ft)	50
Maximum Depth of Treatment (ft)	6	Expects	ed date(s) of t	reatment(s)	mid to late summer o	depending on plant growth	
Treatment method:	X Chemic		Physical		Biological Control	Mechanical	
Based on treatment met	hod, describ	e chemi	cal used, me	thod of physical	or mechanical control	and disposal area, or the species and stocking	
rate for biological contro	l. Nautiqu	ie herbic	ide will be us	ed for control of	eel grass in nuisance	areas only	
Plant survey method:	X Rake	X	Visual	Other (speci		cted from 2005 late summer Tier II su	rvey
	Aquatic F	Plant N	ame		Check if Target Species	Relative Abundance % of Community	
	Eel	grass			X	60	
FI	at-stemm	ed pon	dweed			10	
	Cha	ra spp.				10	
	Comm	on naia	ad			10	
	Sago p	ondwe	ed			10	
Treatment Area #	3		LAT/LON	G or UTM's C	enter of bed @ N	41.32234 W85.75774	
Total acres to be controlled	16	Propose	ed shoreline	treatment length	(ft) 10084	Perpendicular distance from shoreline (ft)	50
Maximum Depth of Treatment (ft)	6		ed date(s) of			depending on plant growth	
Treatment method:	X Chemic		Physical		Biological Control	Mechanical	
Based on treatment me	thod, descrit	oe chemi	cal used, me	thod of physical	or mechanical control	and disposal area, or the species and stocking	
rate for biological contro	ol. Nautiqu	ue herbio	ide will be us	ed for control of	eel grass only in nuisa	ance areas	
Plant survey method:	Rake	X	Visual	Other (speci	fy) Data colle	ected from 2005 late summer Tier II su	rvey
	Aquatic F	Plant N	ame		Check if Target Species	Relative Abundance % of Community	
	Eel	Grass			×	65	
	Co	ontail				15	
	Sago p	ondwe	ed			10	
W. Carlotte	С	hara				5	
	Eurasian	watern	nilfoil			2	
R	tichardsor	n's pon	dweed			1	
	Variable	pondw	reed			1	
	Comm	on nai	ad			1	



							Page 3 of6
Treatment Area #	4		LAT/LO	NG or UTM's	C	enter of bed @ N	41.32483 W85.74374
Total acres to be controlled	1.5	Propos	ed shoreline	treatment ler	nath	(ft) 609	Perpendicular distance from shoreline (ft) 50-100
Maximum Depth of Treatment (ft)	6			f treatment(s)			
Treatment method:	X Chemic		Physical	i deadinent(s)		Biological Control	depending on plant growth Mechanical
Based on treatment m				ethod of phys	ical		and disposal area, or the species and stocking
rate for biological cont						eel grass only in nuisa	
Plant survey method:	XRake	X	Visual	Other (s	pecif	y) Data colle	cted from 2005 late summer Tier II survey
	Aquatic F	Plant N	ame			Check if Target Species	Relative Abundance % of Community
	Eel	grass				×	75
		ontail					15
	CI	hara					5
	Eurasian	waterr	niloil				3
	Richardsor	n's pon	dweed				2
					,		
Treatment Area #	5		LAT/LON	NG or UTM's	Cŧ	enter of bed @ N4	41.32737 W85.75197
Total acres to be controlled	2.75	Propose	ed shoreline	treatment ler	ngth	(ft) 1735	Perpendicular distance from shoreline (ft) 50
Maximum Depth of Treatment (ft)	6			f treatment(s)			depending on plant growth
Treatment method:	X Chemic		Physical			Biological Control	Mechanical
Based on treatment m	ethod, describ	e chemi	ical used, m	ethod of phys	ical	or mechanical control	and disposal area, or the species and stocking
rate for biological cont						eel grass only in nuisa	
Plant survey method:	Rake		Visual	Other (s			cted from 2005 late summer Tier II survey
	Aquatic F	Plant N	ame			Check if Target	Relative Abundance
	Fol	aracc				Species	% of Community
		grass ontail			_	X	80
		nara			_		10
	Water						8
	water	Staryra	155				2
					_		



							Page	4 of 6
Treatment Area #	6		LAT/LO	NG or UTM's	Ce	enter of bed @ N	41.33011 W85.7602	
Total acres to be controlled	3.25	Propose	ed shoreline	treatment len	gth	(ft) 1933	Perpendicular distance from shoreline (ft)	50
Maximum Depth of Treatment (ft)	6			f treatment(s)			depending on plant growth	
Treatment method:	X Chemic		Physical	r ir cum crit(c)		Biological Control	Mechanical	
Based on treatment me	ethod, describ	e chemi	cal used, m	ethod of phys	ical o	or mechanical control	and disposal area, or the species and stocking	
rate for biological conti	ol. Nautiqu	e herbic	ide will be u	sed for contro	l of	eel grass only in nuisa	ance areas	
Plant survey method:	X Rake	X	Visual	Other (sp	ecif	y) Data colle	cted from 2005 late summer Tier II surve) y
	Aquatic F	Plant N	ame			Check if Target Species	Relative Abundance % of Community	
	Eel	grass				×	80	
	Water	Stargra	ISS				5	
	Comm	on naia	ad				5	
	Co	ontail					5	
	Char	a spp.					5	
Treatment Area #	7		LAT/LO	NG or UTM's	Ce	enter of bed @ N	41.33741 W85.77077	
Total acres to be controlled	3.22	Propose		treatment len			Perpendicular distance from shoreline (ft)	50
Maximum Depth of Treatment (ft)	6			f treatment(s)	9		depending on plant growth	
Treatment method:	X Chemic		Physical	r treatment(s)	Г	Biological Control	Mechanical	
Based on treatment me	ethod, describ	oe chemi	ical used. m	ethod of phys	ical	or mechanical control	and disposal area, or the species and stocking	
rate for biological cont						eel grass in nuisance		
Plant survey method:	Rake		Visual	Other (sp			cted from 2005 late summer Tier II surve	ev
	Aquatic F	Plant N	ame			Check if Target Species		
	Eel	grass				×	40	
	Eurasian	watern	nilfoil				20	
	C	hara					10	
	Curlyleaf	pondy	veed				10	
F	lat-stemm	ed pon	dweed				10	
	Richardsor	n's pon	dweed				10	



					Page _	5 of 6				
Treatment Area #	8		LAT/LONG or UTM's C	Center of Bed @ N	141.33295 W85.77929					
Total acres to be controlled	2.63	Propose	ed shoreline treatment length	(ft) 1711	Perpendicular distance from shoreline (ft)	50				
Maximum Depth of Treatment (ft)	6		ed date(s) of treatment(s)	mid to late summer						
	Chemic		Physical Physical	Biological Control	Mechanical					
Based on treatment meth	od, descri	be chemi	cal used, method of physical	or mechanical control	I and disposal area, or the species and stocking					
rate for biological control.	Nautiqu	ue herbic	ide will be used for control of	f eel grass in nuisance	areas					
Plant survey method:	KRake	X	Visual Other (spec	ify) Data colle	ected from 2005 late summer Tier II sur	vey				
/	Aquatic I	Plant Na	ame	Check if Target Species	Relative Abundance % of Community					
	Eel	grass		×	30					
	С	hara			30					
	Co	ontail			30					
	Comm	on naia	ad		10					
INSTRUCTIONS: Who					al. If they are a professional company					
Applicant Signature	wno spe	ecianzes in	lake treatment, they should sign	гоп те "Септев Арриса.	Date					
0 - 1/6 - 1 A - 1/5 - 1/4 - 0/5										
Certified Applicant's Sign	ature				Date					
			FOR	Fisheries Staff Spec	cialist					
	Approved		Disapproved	l iononos otam opos						
	Approved		Disapproved	Environmental Staff	Specialist					
Mail about a			DE 00 1-1							
Mail check or money orde	er in the ar	nount of	DEPARTMENT OF DIVISION OF FISH AI COMMERCIAL LICEN							
			INDIANADOLIS IN A		············					



Lake Tippecanoe-Vegetation Control Permit Map (Page 6)

ХМар⊗ 4.5 2006-Lake Tippecanoe Potential Eel Grass Treatment Areas Area 7 Area 2 Area 6 Area 5 Area 4 Area 3 Data use subject to license. @ 2004 DeLorme. XMap® 4.5. MN (4.6° W) Data Zoom 12-7 www.delorme.com



James Lake-Vegetation Control Permit Application

	APPLICATION VEGETATION State Form 26727 Approved State Bo	Lic	OR OFFICE USE ON ense No. te Issued	Return to: Page 1 of 5 DEPARTMENT OF NATURAL RESOURCES Division of Fish and Wildlife Commercial License Clerk 402 West Washington Street, Room W273 Indianapolis, IN 46204					JRCES				
INSTRUCTION	S: Please print or ty	pe inform	ation					FEE	: \$5.00				
Applicant's Nan	ne			Lal	ke Assoc. Name	-		-					
	Lake Tipped	canoe P	OA	L			Lake 1		canoe POA				
Rural Route or	Street	07	EMO T 404 L					Pho	ne Number				
City and State		67	EMS T 49A Lane			_		ZIP	Code	574-83	34-2185		
			Syracuse, IN					-"	-	46	567		
Certified Applica	ator (if applicable)			Co	mpany or Inc. Name			Cer	tification Nu	ımber			
Rural Route or	Street			\perp				Pho	no Numbor				
turui i iodic oi	Oli CCI							Phone Number					
City and State							ZIP Code						
ake (One appl	ication per lake)			Ne	arest Town			County					
	Lake J	lames			North Webs	ste	r	Kosciusko					
Does water flow	v into a water supply								Yes		X No		
Please compl	ete one section for	EACH tr	eatment area. Attach l	ake	map showing treatn	nen	t area and	den	ote locatio	n of any	water s	upply i	ntake.
Treatment Area	# 1		LAT/LONG or UTM's	Tre	eatment of Eurasian v	wate	rmilfoil on	d our	luloof whor	o it oppu	ro (000 o	n	adata)
Total acres to b	е					Т			,		,	virip up	Juale)
controlled Maximum Dept	h of	Propose	d shoreline treatment len	gth ((ft)	ĮΡε	erpendicula	r dist	ance from	shorelin	e (ft)		
Treatment (f			d date(s) of treatment(s)	_	Early April (water ter	mp	dependent)					
Treatment meth	nod: X Chemic	cal	Physical		Biological Control		Mec	hanio	al				
			al used, method of physi										
ate for biologic			M and low dose Aquathol K	for o	curlyleaf pondweed (no	o mo	ore than 30	acres	, areas dete	ermined t	following s	pring sa	ampling)
Plant survey me	ethod: X Rake	X.	Visual Other (sp	ecify		-	lts from	200	5 May Tie	er II			
	Aquatic F	Plant Na	me		Check if Target Species		Relative Abundance % of Community						
	Curlyleaf	Pondw	eed		×		. 20						
	Co	ontail				Т	20						
		hara				İ	15						
	Eurasian	waterm	ilfoil		×		15						
	Flatstem	Pondwe	eed			Т				10			
		odea				T				10			
	Whorled	watermi	ilfoil			Т				5			
		Stargras				T				3			
	Eel	Grass				Т				2			
						T				-			
						T							
						T							
				_		+			1				



						Page _	2 of 5
Treatment Area #	2		LAT/LON	G or UTM's Ce	enter of bed @ N	41.32471 W85.73584	
Total acres to be controlled	1.75	Propose	ed shoreline	treatment length		Perpendicular distance from shoreline (ft)	50
Maximum Depth of Treatment (ft)	6			treatment(s)	mid to late summer	,,	
Treatment method:	X Chemic		Physical	treatment(s)	Biological Control	Mechanical	
Based on treatment me	ethod, describ	e chemi	cal used, me	ethod of physical of	or mechanical control	and disposal area, or the species and stocking	
rate for biological contr	rol. Nautiqu	e herbic	ide will be us	sed for control of	eel grass in nuisance	areas only	
Plant survey method:	XRake	Х	Visual	Other (specif		cted during late summer Tier II survey	
	Aquatic F	Plant N	ame		Check if Target Species	Relative Abundance % of Community	
	Eel	grass			×	50	
	Co	ontail				45	
	Comm	on naia	ad			5	
	Sago p	ondwe	ed			5	
F	lat-stemm	ed pon	dweed			5	
Treatment Area #	3		LAT/LON	G or UTM's Ce	enter of bed @ N	41.32359 W85.72535	
Total acres to be controlled	1.86	Propose	ed shoreline	treatment length	(ft) 1190	50	
Maximum Depth of Treatment (ft)	6	Expecte	d date(s) of	treatment(s)	mid to late summer of	depending on plant growth	
Treatment method:	X Chemic		Physical		Biological Control	Mechanical	
Based on treatment me	ethod, describ	e chemi	cal used, me	ethod of physical of	or mechanical control	and disposal area, or the species and stocking	
rate for biological contr	rol. Nautiqu	e herbic	ide will be us	sed for control of	eel grass in nuisance	areas only	
Plant survey method:	XRake	X	Visual	Other (specif	y) data colle	cted in 2002 late summer plant survey	
	Aquatic F	Plant N	ame		Check if Target Species	Relative Abundance % of Community	
	Eel	grass			×	40	
	Co	ontail				40	
	Comm	on naia	ad			10	
	Chai	a spp.				5	
	Variable	pondw	eed			5	



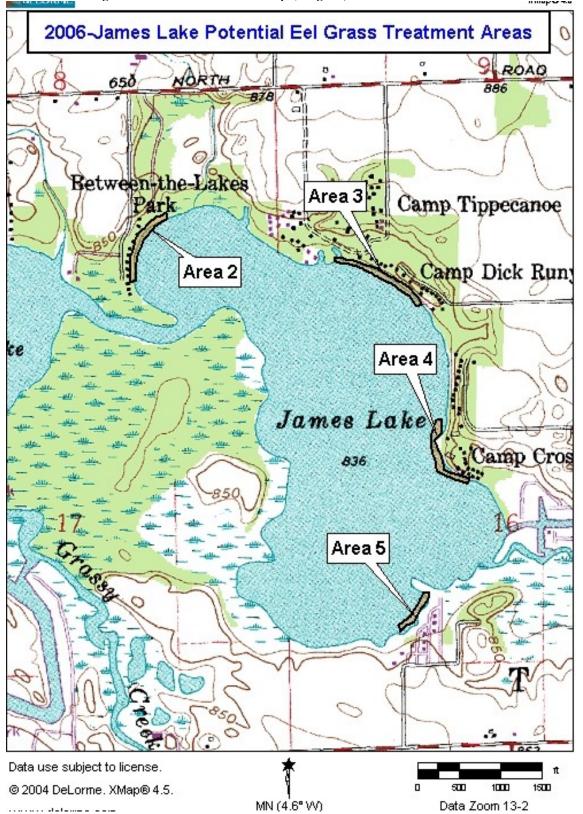
								Pa	ge	3 of 5		
Treatment Area #	4		LAT/LON	NG or UTM's	Ce	enter of bed @ N	41.3	1750 W85.72284		-		
Total acres to be controlled	1.5	Propos		treatment len			T	pendicular distance from shoreline (ft)		50-100		
Maximum Depth of Treatment (ft)	6			f treatment(s)		mid to late summer						
Treatment method:	X Chemic		Physical			Biological Control		Mechanical				
Based on treatment me	ethod, descril	oe chem	nical used, m	ethod of phys	ical o	or mechanical control	and o	disposal area, or the species and stock	king			
rate for biological contr	ol. Nautiqu	ue herbi	cide will be u	sed for contro	olof	eel grass in nuisance	areas	s only				
Plant survey method:	XRake	X	Visual	Other (sp	ecif	y) data collec	cted	during 2004 late summer Tier	II su	ırvey		
	Aquatic f	Plant N	lame			Check if Target Species		Relative Abundance % of Community)			
	Eel	grass				×		40				
	Co	ontail						40				
	Cha	ra spp						10				
	Comm	on nai	ad					5				
	Water	stargra	ass					5				
and the same of th												
Treatment Area #			LAT/LON	NG or UTM's								
Total acres to be controlled		Propos	ed shoreline	treatment len	gth	(ft) channel	Perp	pendicular distance from shoreline (ft)		channel		
Maximum Depth of Treatment (ft)		Expect	ed date(s) of	f treatment(s)								
Treatment method:	Chemic	cal _	Physical			Biological Control		Mechanical				
Based on treatment me	ethod, descri	oe chem	ical used, m	ethod of physi	ical o	or mechanical control	and o	disposal area, or the species and stock	ing			
rate for biological contr	ol.											
Plant survey method:	Rake		Visual	Other (sp	ecif							
	Aquatic F	Plant N	lame			Check if Target Species		Relative Abundance % of Community				
							_					
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				.,,								
	-		. Walanki di kapangangan					- 6) y . 4y . 1				
						1	1					



			Page	4 of _5			
Treatment Area # 5	LAT/LONG or UTM's Ce	enter of bed @ N4	41.31256 W85.72381				
Total acres to be controlled 1 Propos	ed shoreline treatment length ((ft) 515	Perpendicular distance from shoreline (ft)	50-100			
Maximum Depth of Treatment (ft) 6 Expect	ed date(s) of treatment(s)	mid to late summer					
Treatment method: X Chemical	Physical	Biological Control	Mechanical				
Based on treatment method, describe chem	ical used, method of physical o	or mechanical control	and disposal area, or the species and stocking				
rate for biological control. Nautique herbi	cide will be used for control of	eel grass in nuisance	areas only				
Plant survey method: X Rake	Visual Other (specify		cted during 2004 late summer Tier II s	survey			
Aquatic Plant N	lame	Check if Target Species	Relative Abundance % of Community				
Eel grass		. X	70				
Chara			20				
Coontail			10				
INSTRUCTIONS: Whoever treats the lake	fills in "Applicant's Signature" unles	s they are a professional	I If they are a professional company				
who specializes	in lake treatment, they should sign o		nt" line.				
Applicant Signature			Date				
Certified Applicant's Signature			Date				
	FOR	OFFICE ONLY Fisheries Staff Speci	ialist				
Approved	Disapproved						
Approved	Disapproved	Environmental Staff	Specialist				
Mail check or money order in the amount of	f \$5.00 to: DEPARTMENT OF I DIVISION OF FISH AN COMMERCIAL LICENS 402 WEST WASHINGT INDIANAPOLIS, IN 46	D WILDLIFE SE CLERK TON STREET ROOM					



James Lake-Vegetation Control Permit Map (Page 5)





Oswego Lake-Vegetation Control Permit Application

	APPLICATION VEGETATION State Form 26727 (Approved State Boo Whole Lake C Please print or ty	ROL PERMIT 3) 200unts 1987 Multiple Treatment Areas of permit	Lice	OR OFFICE USE ONI ense No. e Issued	LY	Return to: Page 1 of 3 DEPARTMENT OF NATURAL RESOURCES Division of Fish and Wildlife Commercial License Clerk 402 West Washington Street, Room W273 Indianapolis, IN 46204 FEE: \$5.00					
Applicant's Name				Lak	e Assoc. Name						
	Lake Tipped	anoe F	POA	\perp		Lake T	-	canoe POA			
Rural Route or S	treet	6	7 EMS T 49A Lane				1		-834-2185		
City and State							ZIP	Code	40507		
Certified Applicat	or (if applicable)		Syracuse, IN	TCor	mpany or Inc. Name		Cer	tification Numbe	46567 r		
Jerunea Applica	or (ii applicable)										
Rural Route or S	treet						Pho	ne Number			
City and State							ZIP	Code			
							L				
ake (One applic	ation per lake)			Nea	arest Town		County				
	Osweg	o Lake			North Webs	ster		Ko	osciusko X No		
Does water flow	into a water supply										
Please comple	te one section for	EACH	treatment area. Attach	lake i	map showing treatm	ent area and	d den	ote location of	any water su	oply intake.	
Treatment Area	# 1		LAT/LONG or UTM's	Trea	atment of EWM and CLP ti	nroughout lake (areas	determined following	g survey, no more	than 20 acres)	
Total acres to be		Bronco						tance from shor			
controlled Maximum Depth	<20 acres	Flopos	ed shoreline treatment le	igui (
Treatment (ft)			ed date(s) of treatment(s)	_	Early April for Curlyle				nent for EWM)		
Treatment metho	od: X Chemi	cal	Physical		Biological Control	Ме	chani	cal			
Based on treatm	ent method, descri	be chem	ical used, method of phys	sical o	or mechanical control	and disposal	area	, or the species	and stocking		
rate for biologica	l control. Renov	ate for s	elective control of EWM a	and lo	w dose Aquathol K fo	r selective co	ntrol	of CLP (see 200	5 avmp updat	e)	
Plant survey me	thod: X Rake	X	Visual Other (s	pecif	y) Overall re	sults from	Мау	, 2005 Tier II	survey		
	Aquatic	Plant N	lame		Check if Target		Relative Abundance				
	7.194.4.1.0				Species	7	% of Community				
	С	hara						20			
	Co	ontail						20			
	Curlylea	f Pond	weed		×		20				
	Flatstem							20			
	Northern							8			
	Eurasian				×			7			
	Richardso				5						
	Thomas acc										



					Pa	ge2 of	f _3			
Treatment Area #	2		LAT/LONG or UTM's	Center of Bed @ N	l41.32923 W85.78409					
Total acres to be controlled	2.12	Propose	ed shoreline treatment leng	th (ft) 2100	Perpendicular distance from shoreline (ft)	50)			
Maximum Depth of Treatment (ft)	6	Evpecte	ed date(s) of treatment(s)	mid to late summer	depending on plant growth					
	X Chemic		Physical	Biological Control	Mechanical					
					I and disposal area, or the species and stock	king				
rate for biological contro	ı. Nauti	que hei	bicide will be used to	control eel grass o	nly in nuisance areas after IDNR/L	ΓΡΟΑ surv	ev			
	X Rake		Visual Other (spe		ected in 2005 late summer avmp					
	Aquatic F	Plant N	ame	Check if Target Species)				
	Eel	grass		Х	30					
	С	hara			20					
	Co	ontail			20					
	Spin	y Naiad			5					
	Sago p	ondwe	ed		5					
	Small F	ondwe	ed		5					
R	ichardsor	n's Pon	dweed		3					
	Flatstem	Pondw	veed		3	3				
	Eurasian	watern	nilfoil		3					
	Northern	Watern	nilfoil		2					
	Curlyleat	pondw	reed		2					
	Blad	derworl			2					
INSTRUCTIONS: W			lls in "Applicant's Signature" ur lake treatment, they should si		al. If they are a professional company ant" line.					
Applicant Signature					Date					
Certified Applicant's Sig	nature				Date					
			FC	OR OFFICE ONLY						
	1			Fisheries Staff Spec	cialist					
	Approved		Disapproved	Environmental Staff	Specialist					
	Approved		Disapproved	Environmental otali	Openalist					
Mail check or money ord	der in the ar	nount of	DEPARTMENT OF DIVISION OF FISH COMMERCIAL LICE	ENSE CLERK NGTON STREET ROOM						



